Current Status of All Claims in Application/

Amendments

1 (original). A non-linear resistive device comprising a first electrode and a second electrode connected through an electrical pathway that includes a particle matrix, containing coated conductive particles having a conductive core and a nonconductive coating formed in an atomic layer deposition process covering the entire surface of the core, wherein said coating has a thickness of about 0.5 to about 100 nm, and said particle matrix exhibits non-linear resistance.

2 (original). The device of claim 1 wherein the particle matrix includes a polymeric binder.

3 (original). A non-linear resistive device according to claim 2 wherein the particles are loaded into the polymeric binder at or above the percolation limit.

4 (original). The device of claim 2 wherein core-to-core distances between adjacent particles are determined by the thicknesses of the coatings on the adjacent particles.

5 (original). The device of claim 1 wherein the particle matrix further comprises semiconductor particles that are coated with a nonconductive coating formed in an atomic layer deposition process.

6 (original). The device of claim 1 wherein the conductive core is copper, aluminum, nickel, carbonyl nickel, molybdenum, silver, gold, zinc, cadmium, iron, tin, beryllium, lead; an alloy of one or more of the foregoing metals, steel, bronze, brass, Mu-metal, titanium carbide, columbian carbide, tantalum carbide, tungsten carbide, zirconium carbide or a conductive metal silicide.

7 (original). The device of claim 6, wherein the nonconductive coating is Al_2O_3, SiO_2, Hf_2O_3, ZrO_2, or TaO_2.

8 (original). The device of claim 7, wherein the coating thickness is from about 0.5 to about 100 nm.

9 (original). The device of claim 8 wherein the core is iron, nickel or gold and the nonconductive coating is Al_2O_3 or SiO_2.

10 (original). A method for protecting an electronic circuit from a transient electrical voltage, comprising electrically connecting one electrode of the device of claim 1 to a power source for the electronic circuit, and the other electrode of the device of claim 1 to ground.

11 (new). The device of claim 1, wherein the particle matrix contains at least 50 volume % of the coated conductive particles.

12 (new). The device of claim 11, wherein the particle matrix contains at least 70 volume % of the coated conductive particles.

13 (new). The device of claim 1, wherein the nonconductive coating is conformal.

14 (new). The device of claim 5, wherein the coated conductive particles and semiconductor particles together constitute 70% or more of the volume of the particle matrix.

15 (new). A process for making a device of claim 1, comprising

a) forming a nonconductive coating on a core conductive particle via an atomic layer deposition process, such that entire surface of the core particles become covered by the nonconductive coating;

b) forming the coated core particles from step a) into a matrix material and

c) attaching the particle matrix in electrical connection to a first electrode and a second electrode such that the first and second electrodes are connected through an electrical pathway that includes the particle matrix.